RIVER STAGES AND FLOODS FOR MARCH 1949

River stages during March averaged below normal along the Atlantic Slope and East and West Gulf of Mexico drainage areas except in Virginia and Georgia. They averaged mostly above normal in the Missouri, lower Ohio, lower Red and lower Mississippi River Basins. The greatest positive departure was at Fulton, Ark., where the Red River averaged 11.5 feet above normal.

The most significant flooding during the month was that due to ice-gorge action in the Kansas-Nebraska-Iowa-Missouri area. Extensive ice gorges in the Missouri River above Kansas City caused the highest stages of record at Nebraska City, Nebr., and Atchison, Kans., and the highest stage since 1883 at St. Joseph, Mo. A large ice gorge in the Elkhorn River at Norfolk, Nebr., caused the highest stage of record at that point. The most unusual feature of the floods in the Raccoon-Des Moines Rivers was that the thick ice cover held without breaking through the first rise except in a few local areas.

Precipitation during the month averaged mostly below normal east of the Mississippi River except in the states bordering along the main stem of the River. West of the Mississippi, it was above normal in a large area extending from the Upper Great Lakes region southwestward to California. It was also above normal in the Upper Columbia Basin and in the lower portions of the Arkansas and Red Basins. The greatest departure occurred over the central portion of the Platte River Basin in Nebraska where precipitation averaged 400 percent of normal.

The total snowfall during March and the depth of snow on the ground at the close of the month is shown in chart VII in the illustration section of the REVIEW.

St. Lawrence drainage.—Slight flooding occurred in the Upper Grand River in the Lake Michigan drainage on March 31st, and April 1st, due to the heavy rain (1.38 inches) on the last day of the month. No damage resulted from the light overflow.

Atlantic Slope drainage.—Precipitation in the Merrimack River Basin during March averaged from one-half to two-thirds of normal and was mostly in the form of rain. Above normal run-off occurred from snow-melt due to the relatively high temperatures. Only about one-half of the normal snow cover remained in the Pemigewasset basin above Plymouth, N. H., and none in the Merrimack basin below Franklin Falls, N. H., by the end of the month. A moderate rise resulted from the moderately heavy rain (0.75 inch) over the headwaters of the Pemigewasset on the 23d and 24th, with a maximum crest during the month at Plymouth, N. H., of 8.65 feet, 2.35 feet below bank-full stage.

The past winter was characterized by a very light snow cover in New England, averaging about 50 percent of normal. Most of the light snow cover in the Connecticut River Basin melted slowly during March and was not accompanied by any heavy rainfall. This condition resulted in a very orderly run-off with only moderate rises to levels 3 to 5 feet below bank-full stage. The highest stage at Hartford, Conn., was 14.5 feet, 1.5 feet below flood stage on the 30th. The only snow of consequence remaining at the end of the month was in the extreme northern tip of the Connecticut River north of the large storage reservoirs of Pittsburg and 1st Connecticut Lake.

Minor rises occurred in the Susquehanna River on the 6th–8th, and 23d–26th, due to melting of the extremely light snow cover and rainfall. The stream flow was among the lowest of record for March and the highest stage at Harrisburg, Pa. (5.8 feet) was the lowest for this month since 1916, when the sanitary dam was built.

The only significant rise in the Rappahannock Basin during the month was due to the heavy rain (1.2 inches) on the 22d and 23d when near bank-full stages were reached in the headwaters at Remington and Rapidan, Va., and about one-half bank-full in the lower portion at Fredericksburg, Va. No important rises occurred in the Potomac Basin.

A moderate flood occurred in the James River below Scottsville, Va., on the 23d to the 25th due to the heavy rain on the night of the 22d. The rain occurred over a narrow belt extending from the upper Roanoke across the Middle James River and northern tributaries and ranged from less than half an inch above Lick Run to 4.3 inches at Rockfish, Va. The rain caused an abnormally rapid rise in the middle and lower James, with a crest of very short duration. This same storm caused a rapid rise in the upper Roanoke to well above flood stage at Altavista, Va., on the 23d. The crest flattened out considerably as it moved down stream, reaching Williamston, N. C., near the mouth, on the 28th. No damage resulted from the flooding in either the James or the Roanoke.

Frequent, but not very heavy, rains occurred over the Altamaha River Basin during the month. The only flooding that occurred was at Charlotte, Ga., during the first decade.

East Gulf of Mexico drainage.—The Apalachicola River remained above flood stage at Blountstown, Fla., the entire month due to frequent rains during March. However, it is not unusual for this station to remain above flood stage for long periods while other points are below bank-full stage. No damage resulted from the overflow at this point as it did not reach a very high stage.

Heavy rains (1.73 inches) over the Cahaba River on the 31st resulted in some flooding at Centerville, Ala., on the 31st and April 1st. The rainfall was heavy over the entire Alabama River System (1.39 inches) but no other flooding occurred.

Heavy rains over the Tombigbee River system on the 22d caused sharp rises to above flood stage at Whitefield and Jackson, Ala., on the 23d and 25th, respectively. The rainfall averaged 1.5 inches in the headwaters and 2.5 inches over the middle and lower sections. Additional heavy rains on the 27th and 28th averaging about 2 inches over the headwaters of the Warrior and 2.2 inches over the upper Tombigbee resulted in flooding on the Warrior and Upper Tombigbee Rivers on the 28th. Heavy rains occurred again on the 31st. No material damage resulted from this overflow as this area had just recently been under water.

Locally excessive rain in the Pearl River above Monticello, Miss., and in the Bogue Chitto River above Franklinton, La., on the 21st and 22d, produced rises to above flood stage over the intermediate reaches. The lower reaches of the Pearl River had continued above flood stage from the vicinity of Bogalusa, La., to the coast from the previous rise. Excessive rain occurred again over the Pearl and Pascagoula Rivers on the 27th and 28th and again on the 29th and 30th. Rainfall at Jackson, Miss., during March was the heaviest since the beginning of record in 1896, 86 percent of the total occurring during the period from the 21st to the 30th.

Upper Mississippi Basin.—Minor floods developed in the Zumbro and Whitewater Rivers in Minnesota on the 5th, and 6th due to melting snow and backwater from ice

gorges. The same conditions prevailed in the Root River but flood stages were not reached. Inconvenience, however, resulted from the closing of the Brownsville, Minn., highway where floodwaters reached a depth of 3 feet. A secondary rise with additional flooding occurred on these streams during the last decade due to rain that averaged 2.75 inches during the last seven days of the month.

Conditions over the Raccoon and Des Moines River Basins preceding the flood in February and March were similar in some respects to those of 1948 and 1929. Soil moisture was already high when cold weather set in during the last few days of December, and precipitation continued above normal through January. The rivers were frozen over with ice ranging from 10 to 20 inches thick. In the latter half of February warmer weather caused some flooding from snowmelt on the Raccoon at and below Van Meter, Iowa, and on the Des Moines at Tracy and Eddyville, Iowa on February 24th. Some recession occurred but new rises began on March 2d as a result of run-off and ice gorges.

The thick ice cover held without breaking through the first rise except in a few local areas. Carrying the ice sheet unbroken, the Raccoon at Van Meter rose from below 5 feet to 13.7 feet, then receded to 10 feet; the Des Moines at Tracy rose from below 5 feet to 17.4 feet, and receded to near 11 feet; and at Eddyville the Des Moines rose to 19.7 feet, 4.7 feet above flood stage. There were sharp fluctuations in stage when the ice finally broke during the second thaw. At Tracy, the Des Moines rose from 12.8 to 18.9 feet in a few hours and receded almost as rapidly. There were several sharp rises and falls on the Raccoon at Van Meter during the ice run in the tributary streams above.

Most of the damage during this flood was the result of ice action. A highway bridge over the Des Moines at Chillicothe, Iowa, and a county highway bridge over the Raccoon were destroyed.

The light flooding along the Meramec River in Missouri on the 19th and 20th was due to rainfall averaging 0.75 inch during the 24-hour period ending at 7 a. m. on the 18th.

Gradual rises occurred in the upper Mississippi River during the first week of March as a few days of warm weather caused some melting of the heavy snow cover and ice movement beginning in the southern portion of the basin and gradually spreading northward with alternate periods of freezing and melting weather. Rather general rains about the 8–9th caused some slight flooding in the Mississippi below Keokuk Dam a few days later. A secondary rise occurred from the 13th to the 15th. Little or no damage occurred along the Mississippi as the overflow was light.

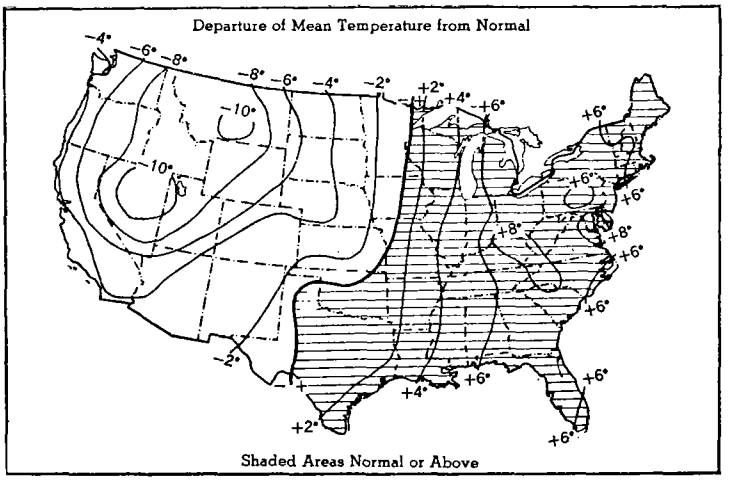
Missouri Basin.—The abnormally low temperatures during the winter as shown in figure 1 caused unusually heavy ice to form on the majority of the streams. Warm weather during the first week of March in the Missouri Basin caused increased stream flow from the melting of the rather heavy snow cover accumulated during the winter. The moderate run-off augmented by the ice break-up and accompanying ice gorges produced flooding which was locally severe throughout the Kansas-Nebraska-Iowa-Missouri area. Extensive ice gorges in the Missouri River above Kansas City caused the highest stages of record at Nebraska City, Nebr., and Atchison, Kans., and the highest stage since 1883 at St. Joseph, Mo. All the gorges in the Missouri River below Omaha, Nebr., broke by the 5th clearing out the ice in this section.

The flooding along the Floyd and Big Sioux Rivers in Iowa that began during the first week of March was due entirely to snow melt and ice break-up. Both streams were clear of ice by the 8th which was from 15 to 25 inches thick before the warm weather began on the 2d. Minor flooding occurred in the Solomon River at Niles, Kans., on the 1st and 2d.

There was considerable gorging of ice on the lower Missouri and tributaries in Nebraska during the second week, with local flooding in the Platte, Elkhorn, Republican, and the Big and Little Blue Rivers.

Ice gorge action was especially important on the Elkhorn between Norfolk and West Point, Nebr., where a succession of ice gorges formed between the 9th and 20th. A large gorge at Norfolk from the 10th to the 12th caused the highest stage of record (13.68 feet) at that point. Most of the damage from the overflows in the Elkhorn Basin was to permanent installations. Several bridge approaches and fills were damaged, especially in the western half of the Valley. Considerable loss resulted to stacked hay on the meadowlands in the Ewing-O'Neill-Atkinson district. The Norfolk city park was damaged heavily due to erosion from running water when the main channel of the Elkhorn was diverted through the park area by an ice gorge.

The severe flooding in the upper reaches of the Big and Little Blue Rivers and in the Republican near the Kansas-Nebraska line resulted from ice action and snow melt. The ice gorges were extensive in the Republican and Blue



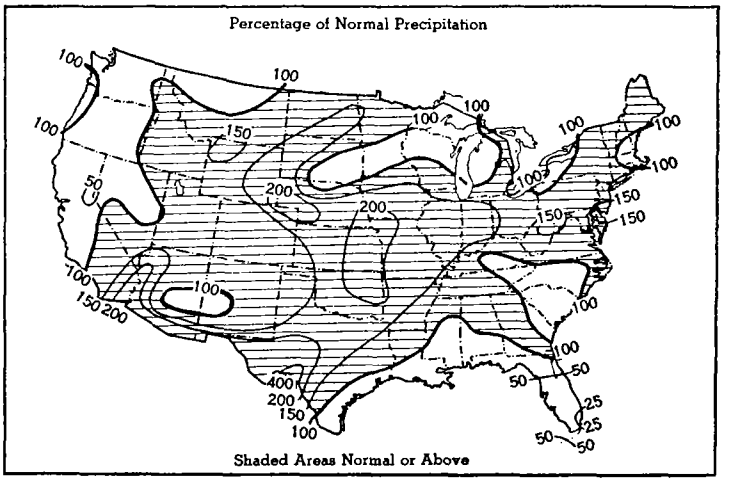


FIGURE 1.—Charts showing temperature departure from normal and percentage of normal precipitation in the United States for winter of 1948–49 (December-February).

Rivers. At Scandia, Kans., on the Republican, the ice jam which extended for a distance of 7 miles caused severe flooding at that point. The Missouri Pacific tracks in the lower sections of the city were inundated to depths of 3 feet. Along the Big Blue, the most severe overflow extended downstream as far as Marysville, Kans., with crests 8 to 9 feet above bank-full stage between Beatrice and Barnston, Nebr. Unusually high stages occurred in the headwaters with a record stage at Crete, Nebr.

The Yellowstone River ice started to break up about the middle of the month. It had risen to above bank-full stage in the lower portion in Montana by the 25th. There was also considerable gorging in the Platte River between North Bend and Ashland, Nebr., during this period.

By the 12th of the month, the Missouri was free of ice as far upstream as Yankton, S. Dak., and during the last decade the ice softened and broke as far upstream as Mobridge, S. Dak. By the close of the month the upper Missouri was rising but still frozen over above Mobridge, S. Dak. It was near bank-full stage in North Dakota and local flooding was occurring on the Heart, Knife, Little Missouri, and Cannonball Rivers. The lower Missouri River was near bank-full stage at and below Nebraska City, Nebr., with some local flooding occurring at that point.

Ohio Basin.—The lower Ohio River which was above flood stage at and below Mount Vernon, Ind., in the beginning of the month continued falling slowly until the 10th when a minor rise developed due to heavy rain on the 8th and 9th, averaging over 2 inches below Louisville, Ky. The only flooding that resulted occurred at Cairo, Ill. The Ohio rose 3.2 feet at that point and crested 0.5 foot above flood stage on the 15th.

Flooding on the Scioto, Green, Wabash, White, Tennessee, and lower Ohio Rivers resulted from heavy rains from the 25th to the 27th over the Ohio, Tennessee, and Cumberland Valleys.

Light flooding occurred in the Scioto River at La Rue and Piketon, Ohio, and in the Green River at Woodbury and Rumsey, Ky., due to rainfall averaging from 1 to 1½ inches on the 26th–27th.

Light flooding occurred on the lower West Fork and along the main stem of the White Rivers in Indiana due to rain and snow from the 9th to the 11th averaging between 1 and 2 inches except in the headwaters. Moderate to heavy rain (1.5 to 3 inches) occurred again between the 25th and 27th in the White and Wabash Basins causing minor flooding in the upper reaches of the White and Wabash Rivers and major flooding in the lower reaches of the White. This was the fourth time this year that vast areas of flood plain along the Wabash and White Rivers had been inundated by flood waters.

Above bank-full stages were reached at only 2 points in the Tennessee Basin during the month. The flooding on the Tennessee at Gilbertsville, Ky., and on the South Chickamauga Creek near Chickamauga, Tenn., was due to heavy rains over the lower half of the basin during the last week of March.

The rise to above bank-full stage in the lower Ohio at and below Shawneetown, Ill., was due to rainfall averaging 3.18 inches below Louisville, Ky. No damage occurred along the main stem of the Ohio.

White, Arkansas, and Red Basins.—The flooding in the White, Arkansas, and Red Basins was generally a continuation of the floods that occurred during January and February and was discussed in the February report.

Light flooding occurred in the White River at Whitecliffs, Ark., due to the heavy rain over the basin on the 21st (1.6 inches) and 26th (1.85 inches). Only slight damage occurred.

Heavy showers (1 to 2 inches) in the upper Sulphur Basin on the 21st and again on the 25th resulted in bank-full stage at Naples, Tex., on the 25th.

Lower Mississippi Basin.—After the heavy general rains of the 9th and 10th over the upper St. Francis River had poured considerable water into the reservoir above Wappapello Dam, the addition of 0.75 inch of rain on the 18th was enough to cause flooding at Fisk, Mo., and St. Francis, Ark. Rain occurred again over the basin averaging about 0.75 inch on the 22d and 2.5 inches on the 26th and 27th. The heaviest amount reported during the latter storm was 5.37 inches at St. Francis, Ark.

The Tallahatchie at Swan Lake, Miss., had receded to a stage 3–4 feet below flood stage by the middle of the month. It rose again to above bank-full stage by the 27th as a result of a series of moderate rains.

The Yazoo at Greenwood, Miss., remained below bank-full stage all month, but was rising moderately at the close of the month. It remained above flood stage at Yazoo City, Miss., during March but reached about 3 feet. Arkabutla Reservoir on the Coldwater River was less than half full on the 31st but the Sardis Reservoir on the Tallahatchie was about 80 percent full with stages near the highest of record since construction in 1939.

Rather general light to moderate rains over the Missouri, Mississippi, and Ohio Basins kept the lower Mississippi relatively full throughout the first three weeks. It remained above flood stage at and below Red River Landing, La., from early in February to about the middle of March. It went above bank-full stage at New Madrid and Caruthersville, Mo., on the 30th due to additional heavy rain in the middle Mississippi and lower Ohio on the 26th and 27th.

A break occurred in the mainline levee on the Mississippi River near Port Allen, La., across the river from Baton Rouge, early on the 24th. It was the first break of a mainline levee in this area since 1927. It occurred on a falling river so evidently was due to a sudden slide of about 600 feet of the natural bank which took with it a section of the levee. The gap was about 250 feet wide. Emergency repairs were started as soon as equipment could be brought to the scene, and by the night of the 26th the gap in the levee was closed. Approximately 25 square miles of rich sugarcane land and swamps in West Baton Rouge Parish were inundated.

West Gulf of Mexico drainage.—Minor flooding occurred in the West Gulf of Mexico drainage as a result of the heavy rains during the last decade.

The rains over the Sabine Basin in Texas averaged 1.5 inches on the 21st and about 3 inches during the last 7 days. The rains over the Louisiana streams averaged about 2.75 inches on the 21st and 22d. Only negligible damages resulted from the flooding.

The overflow along the upper Trinity River was not serious and no damage of consequence resulted. The overflow resulted from the heavy rains on the 25th and 26th that fell on soil saturated from the moderately heavy rains on the 21st. At Fort Worth, Tex., 1.40 inches of rain fell on the afternoon of the 25th in a period of 1 hour.

Light flooding occurred in the lower Trinity at Liberty, Tex., as a result of the heavy rain on the 21st and 22d which averaged 2.84 inches between Riverside and Liberty, Tex. No damage occurred in the vicinity of Liberty, but minor damage occurred at Long Lake, Tex., as a result of a flood in the early part of March resulting from the heavy rains over the upper Trinity from February 23d to 25th.

The minor floods on the Nueces and Guadalupe Rivers in Texas during the early part of March were due to rains averaging between 2 and 2.5 inches in the middle and

upper portions of the basin on February 25th and 26th. Minor flooding occurred in the headwaters of both rivers on February 26th and 27th and near bank-full stages at Gonzales and Cuero on the Guadalupe on the 27th and 28th. Damage from the flooding was minor as there were very few crops planted in the flooded area.

No material damage resulted from the slight flooding on the Rio Grande at Mercedes, Tex., March 1.

Sacramento Basin.—The second week in March brought the highest water to the Sacramento Valley since January 1946, but bank-full stages were not reached along the main streams.

Some of the creeks east of Sacramento overflowed in low places due to heavy local thundershowers on the night of of the 10th. Some damage occurred to the abutment of a bridge and a highway fill on Deer Creek near Sloughhouse, Calif. East of Sacramento, water accumulated locally where drainage was poor. Near Elk Grove, two families were marooned by local water and had to be rescued. Other than inconvenience, very little damage occurred as a result of the high water.

Heavy downpours on the 11th in the Coast Range caused the creeks west of Willows in Glenn County to become torrents. Highway 99 north of Willows was closed by a foot or more of water, halting traffic for a few hours. On the morning of the 13th the Fremont Weir began to overflow into Yolo Bypass and spread over half or more of the basin by the 24th. The Yolo Bypass road to Woodland, Calif., was closed from the 14th to the 16th.

Approximately 6,000 acres of barley was lost through the flooding. Very little damage usually results from the flooding of the Bypass lands as they are usually flooded during the winter rainy season and no farming is normally done on these unprotected lands until after the water drains off in the spring. This year there had been no water in the Yolo Bypass prior to March, so some barley had been planted.

Eel Basin.—A minor flood occurred on the lower Eel River between the 18th and 20th due to moderate to heavy rains from the 16th to the 19th. The rainfall over the basin averaged 1.5 inches during each 24-hour period. Considerable valuable topsoil was washed into the ocean but no damage occurred to buildings. The minor flood caused some damage to county roads and small bridges.

FLOOD STAGE REPORT FOR MARCH 1949

[All dates in March unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Michigan					
	Feet			*Feet*	
Red Cedar: Williamston, Mich	7	31	31	7.0	31
ATLANTIC SLOPE DRAINAGE					
James:					
Bremo Bluff, Va	19	23	24	26.1	23
Columbia, Va	18	23	24	27.9	23
State Farm, Va	12	24	25	17.9	24
Richmond, Va	8	24	25	13.3	24
Roanoke:					
Alta Vista, Va	10	23	24	26.4	23
Randolph, Va	21	24	25	24.7	24
Weldon, N. C	31	26	27	35.0	26
Scotland Neck, N. C	28	27	28	28.6	27
Williamston, N. C	10	Feb. 5	Feb. 28	10.9	Feb. 16, 17
		28	Apr. 8	11.0	Apr. 1
Saluda: Pelzer, S. C	6	24	24	7.0	24
Ogeechee: Dover, Ga	7	Feb. 13	5	7.9	Feb. 16
Ocmulgee: Abbeville, Ga	11	Feb. 13	Feb. 28	12.8	Feb. 16
Altamaha: Charlotte, Ga	12	Feb. 7	10	17.7	Feb. 20, 21

See footnotes at end of table

FLOOD STAGE REPORT FOR MARCH 1949—Continued

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
EAST GULF OF MEXICO DRAINAGE					
	Feet			*Feet*	
Apalachicola: Blountstown, Fla	15	Dec. 1	(2)	23.6	Dec. 6
				20.6	Jan. 11
				20.9	Feb. 14
				18.4	1
Cahaba: Centerville, Ala	23	31	Apr. 1	27.6	31
Black Warrior:					
Tuscaloosa Lock and Dam, Ala	47	28	29	49.3	29
Lock No. 7, Eutaw, Ala	35	28	(2)		
Tombigbee:					
Aberdeen, Miss	34	28	Apr. 2	38.6	31
Columbus, Miss	29	31	Apr. 2	29.7	Apr. 1, 2
Gainesville, Ala	36	30	(2)		
Lock No. 4, Demopolis, Ala	39	Jan. 9	3	65.2	Jan. 14
				54.5	Feb. 21
		28	(2)	56.2	Apr. 6
Lock No. 3	33	Nov. 21	6	61.5	Jan. 16
				56.0	Feb. 21
		23	(2)		
Lock No. 2	46	29	(2)		
Lock No. 1	31	Jan. 6	9	40.0	Feb. 19, 20, 21
		25	(2)	38.7	Apr. 11
Bogue Chitto: Franklinton, La	11	22	25	15.2	24
Chickasawhay:					
Meridian, Miss	15	31	31	18.6	31
Enterprise, Miss	20	24	25	20.5	24
		31	(2)		
Shubuta, Miss	30	30	(2)		
Pascagoula: Merrill, Miss	22	25	29	22.4	27
		30	(2)		
Pearl:					
Edinburg, Miss	20	27	(2)		
Jackson, Miss	18			32.9	Dec. 6
				33.1	Jan. 12
		Nov. 20	7	30.5	Jan. 26
				29.5	Feb. 1
				27.8	17
		24	(2)		
Monticello, Miss	15	Jan. 5	3	20.8	Jan. 7
				22.9	Jan. 20
				20.8	Feb. 17
		22	24	16.1	23
		27	(2)		
Columbia, Miss	17	Jan. 7	Feb. 28	19.7	Jan. 11
				22.4	Jan. 23
				21.0	Feb. 19
		22	25	18.1	23
		29	(2)		
Pearl River, La	12	Nov. 24	(2)	16.7	Nov. 30
				15.0	Jan. 15
				15.8	Jan. 27
				16.1	Feb. 22
				13.4	20
				15.7	26
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Zumbro: Thielman, Minn	35	6	6	37.2	6
		25	28	37.9	28
Whitewater: Beaver, Minn	7	4	5	8.9	4
		25	25	8.1	25
Pecatonica: Freeport, Ill	10	Feb. 25	3	12.2	1
		5	12	14.3	9
Rock: Moline, Ill	10	Feb. 19	17	12.9	2
Iowa: Wapello, Iowa	10	8	15	12.8	12
Skunk: Augusta, Iowa	15	Feb. 25	1	16.1	1
Raccoon: Van Meter, Iowa	13	3	8	16.6	4
Des Moines:					
Des Moines, Iowa	13	7	7	13.0	6
Tracy, Iowa	14	5	11	19.0	5
Eddyville, Iowa	15	Feb. 24	12	19.6	Feb. 27
Ottumwa, Iowa	9	6	12	10.4	10
Illinois:					
Havanna, Ill	14	Feb. 18	11	16.6	Feb. 24–27
Beardstown, Ill	14	Feb. 18	13	18.5	Feb. 27
Meramec:					
Sullivan, Mo	11	19	19	11.4	19
Pacific, Mo	11	20	20	13.5	20
Mississippi:					
Keokuk, Iowa	12	8	14	13.3	12–13
Gregory Landing, Mo	12	9	16	13.3	11
Quincy, Ill	14	9	15	15.4	13
		7	17	15.5	13
Hannibal, Mo	13	28	28	13.0	28
		31	31	13.2	31
		Feb. 26	3	12.8	Feb. 27
					Mar. 2.
Louisiana, Mo	12	6	16	14.2	14
		23	29	12.8	28
		31	(2)	12.2	31
Missouri Basin					
Big Sioux: Akron, Iowa	12	4	10	17.0	8
		29	(2)	16.2	31
Floyd: James, Iowa	14	2	8	18.1	5
		25	26	16.4	26
North Fork: Pierce, Nebr	12	24	27	14.0	26
Elkhorn:					
Neligh, Nebr	10	9	10	10.0	10
Norfolk, Nebr	10	9	12	10.0	9
				13.7	11
West Point, Nebr	12	7	9	12.5	8

See footnotes at end of table.

FLOOD STAGE REPORT FOR MARCH 1949—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest [1] Stage	Date
MISSISSIPPI SYSTEM—continued					
Missouri Basin—Continued					
Nishnabotna:	*Feet*			*Feet*	
Hamburg, Iowa	18	6	8	23.0	7
Red Oak, Iowa	13	5	6	17.4	5
Nodaway: Burlington Junction, Mo	16	4	5	19.7	5
Platte: Agency, Mo	20	1	1	20.8	1
Solomon: Niles, Kans	24	1	2	25.4	2
Little Blue: Hanover, Kans	14	6	7	14.4	7
Big Blue:					
Beatrice, Nebr	16	5	11	24.9	8
Barnston, Nebr	18	6	12	21.9	6
				26.2	9
Blue Rapids, Kans	20	7	12	23.1	10
Grand:					
Chillicothe, Mo	18	Feb. 24	Feb. 28	27.9	Feb. 25
		31	31	22.9	31
Sumner, Mo	25	Feb. 24	1	31.2	Feb. 27
		27	28	25.6	27
		31	(2)	28.9	31
Brunswick, Mo	12	Feb. 25	2	13.7	Feb. 28
					Mar. 1.
		7	11	15.0	8
		24	25	12.7	24
		28	(2)	14.9	31
Chariton: Novinger, Mo	19	Feb. 24	7	23.6	Feb. 25
				21.0	5
		27	28	21.2	27
		30	(2)	22.5	31
Marais des Cygnes:					
Osawatomie, Kans	28	31	31	28.5	31
LaCygne, Kans	25	Apr. 1	Apr. 1	25.5	Apr. 1
Missouri:					
Nebraska City, Nebr	15	Feb. 27	Feb. 28	15.1	Feb. 28
		3	7	25.8	6
		29	30	15.8	29
Browville, Nebr	15	6	9	20.5	6
		28	31	16.4	30
Rulo, Nebr	17	6	8	19.0	7
Nodaway, Mo	17	Feb. 6	8	21.0	Feb. 20, 25, 26.
				23.0	5
St. Joseph, Mo	17	Feb. 26	8	17.7	Feb. 27
				21.4	7
Atchison, Kans	20	Feb. 3	9	26.6	6
Leavenworth, Kans	19	7	8	20.0	8
Waverly, Mo	18	7	11	20.2	9
		30	31	19.2	31
St. Charles, Mo	25	10	12	25.8	10
Ohio Basin					
Scioto:					
LaRue, Ohio	11	27	28	12.1	27
Piketon, Ohio	15	27	28	17.8	28
Green:					
Lock No. 4, Woodbury, Ky	33	21	21	33.6	21
		29	30	33.9	30
Lock No. 2, Rumsey, Ky	34	Feb. 15	8	43.1	Feb. 25
		25	(2)		
West Fork:					
Muncie, Ind				6.9	27
Anderson, Ind	10	28	28	12.7	28
Spencer, Ind	14			17.8	28
Elliston, Ind	18	27	(2)	23.6	29
Newberry, Ind				17.8	30
Edwardsport, Ind	12	Feb. 15	1	20.9	Feb. 19–20
		11	16	14.6	12
		27	(2)	20.3	31
East Fork:					
Columbus, Ind				10.5	29
Seymour, Ind	14	27	30	17.0	28
Bedford, Ind				25.3	31
Williams, Ind	10	30	(2)	13.6	31
White: Petersburg, Ind	16	27	(2)	22.0	31
Wabash:					
Terre Haute, Ind	14	Feb. 16	Feb. 28	19.8	Feb. 20
Vincennes, Ind	16	Feb. 17	Feb. 28	21.0	Feb. 23–24
Mt. Carmel, Ill	17	Feb. 17	Feb. 28	23.2	Feb. 23
New Harmony, Ind	15	Feb. 19	Feb. 28	18.6	Feb. 25
South Chickamagua Creek: Chickamauga, Tenn	10	31	(2)		
Ohio:					
Dam No. 47, Newburgh, Ind	38	Feb. 17	Feb. 28	42.8	Feb. 22
Dam No. 48, near Henderson, Ky	38	Feb. 18	Feb. 28	42.2	Feb. 23
Mount Vernon, Ind	35	Feb. 18	3	40.2	Feb. 25
Dam No. 49, Uniontown, Ky	37	Feb. 19	4	42.6	Feb. 25
				38.8	Jan. 14
Shawneetown, Ill	33	Jan. 7	6	49.2	Feb. 4
				43.1	Feb. 26
		30	(2)		
Dam No. 50, Fords Ferry, Ky	34	Jan. 7	7	41.7	Jan. 15
				52.2	Feb. 4
				46.0	Feb. 26
		29	(2)		
Dam No. 52, Brookport, Ill	37	28	Apr. 6	41.2	Apr. 2

See footnotes at end of table.

FLOOD STAGE REPORT FOR MARCH 1949—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest [1] Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Dam No. 53, near Mound City, Ill	*Feet* 42	28	Apr. 8	*Feet* 47.5	Apr. 2
Cairo, Ill	40	13	17	40.5	15
		27	Apr. 9	46.7	Apr. 3
White Basin					
Black:					
Poplar Bluff, Mo	16	27	27	16.1	27
Black Rock, Ark	14	Jan. 18	7	28.5	Jan. 25
White:					
Augusta, Ark	32	29	Apr. 5	32.3	Apr. 1
Georgetown, Ark	21	28	Apr. 11	22.8	31
Des Arc, Ark	24	29	Apr. 10	25.8	Apr. 1
Clarendon, Ark	26	Jan. 22	(2)	35.3	Feb. 6
				31.5	Feb. 27
St. Charles, Ark	25	Jan. 11	(2)	33.9	Feb. 10
Red Basin					
Little Missouri: Boughton, Ark	20	28	28	20.6	28
Saline: Benton, Ark	20	10	10	20.7	10
Ouachita:					
Arkadelphia, Ark	17	10	11	22.0	10
		26	29	21.0	28
Camden, Ark	26	12	17	30.2	15
		27	Apr. 5	34.1	31
Black: Jonesville, La	50	Feb. 13	(2)	51.8	1–4
				51.9	Apr. 2
Little:					
Horatio, Ark				26.3	28
Whitecliffs, Ark	25	28	30	25.7	29
Sulphur:					
Hagansport, Tex	38	Feb. 24	1	42.2	Feb. 25
		22	22	39.3	22
		26	29	40.2	27
Naples, Tex	22	Feb. 25	7	29.0	Feb. 28
		26	(2)	26.2	31
McCartney Bridge, Tex				29.5	3
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo	20	19	(2)	22.8	21, 22
				23.3	29, 30
St. Francis, Ark	18	20	(2)	21.6	27
Coldwater: Sarah, Miss	18	25	25	19.0	25
Tallahatchie: Swan Lake, Miss	26	Jan. 4	1	30.0	Jan. 9–10
				29.2	Feb. 7
		27	(2)	29.6	Apr. 2
Yazoo: Yazoo City, Miss	29	Jan. 3	(2)	36.2	Feb. 10
Mississippi:					
Red River Landing, La	45	Feb. 8	17	48.0	Feb. 23
Baton Rouge, La	35	Feb. 7	19	38.4	Feb. 22–25
Donaldsonville, La	28	Feb. 8	18	30.4	Feb. 22–24
Reserve, La	22	Feb. 9	17	23.6	Feb. 22–25
New Orleans, La	17	Feb. 9	18	18.4	Feb. 24
Atchafalaya Basin					
Atchafalaya:					
Simmesport, La	41	Feb. 15	15	42.1	Feb. 25
Melville, La	37	Feb. 6	22	39.9	Feb. 23
Atchafalaya, La	25	Jan. 17	(2)	28.8	Feb. 23–Mar. 1
Morgan City, La	6	[3] Feb. 18	31	8.0	21
WEST GULF OF MEXICO DRAINAGE					
Nezpique: Basile, La	22	25	26	22.3	26
Mermentau: Mermentau, La	50	31	Apr. 3	5.3	31
Calcasieu: Kinder, La	16	29	Apr. 6	19.6	Apr. 1
Sabine:					
Mineola, Tex	14	26	28	15.2	27
Gladewater, Tex	26	2	9	33.7	4
Bon Wier, Tex	17	28	Apr. 4	18.8	Apr. 1
East Fork: Rockwall, Tex	10	26	28	14.8	26
Trinity:					
Dallas, Tex	28	26	28	33.6	27
Rosser, Tex	26	28	31	30.1	30
Trinidad, Tex	28	31	Apr. 3	32.5	Apr. 2
Long Lake, Tex	40	3	9	42.4	5
Liberty, Tex	24	9	16	25.7	14
		22	27	25.1	24
Guadalupe: Victoria, Tex	21	1	2	22.0	1
Nueces: Cotulla, Tex	15	1	5	20.4	3
Rio Grande: Mercedes, Tex	21	1	1	21.5	1
PACIFIC SLOPE DRAINAGE					
Sacramento Basin					
Eel: Fernbridge, Calif	17.5	18	20	20.4	18

[1] Provisional.
[2] Continued at end of month.
[3] Flood stage or higher reached intermittenly.